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Remediation Services, L.L.C.**  
*... protecting the environment*

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ER/WM & I Operations  
Building T130C  
Rocky Flats Environmental Technology Site

INTEGRATED WATER MANAGMENT STRATEGY PROJECT PLAN - HJZ-045-95

Action: None Required

Attached please find the Integrated Water Management Strategy Project Plan for your review. A second copy is included for transmittal to the Department of Energy/Rocky Flats Field Office counterpart.

Should you have any questions regarding this document, please do not hesitate to contact Jim Barthel at extension 2775.

H. J. Zelle  
Executive Vice President  
Rocky Mountain Remediation Services, L. L. C.

DLC

Attachment:  
As Stated

11.020.1

CLASSIFICATION:

CLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

**AUTHORIZED CLASSIFIER  
SIGNATURE:**

ate: 11/4/95

REPLY TO RFP CC.NO.:

ACTION ITEM STATUS:

☐ OPEN ☒ CLOSED  
PARTIAL

**LTR APPROVALS:**

RIG. & TYPIST INITIALS:

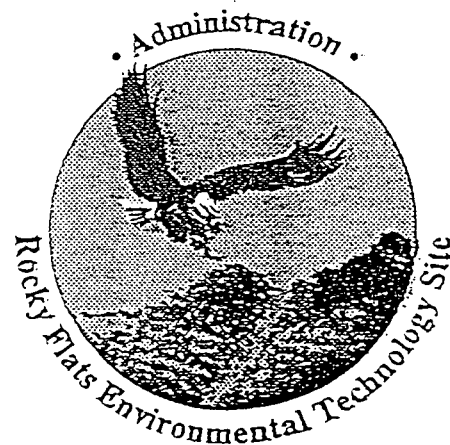
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ADMIN RECCRD

SW-A-004216



# INTEGRATED WATER MANAGEMENT STRATEGY PROJECT PLAN



NOVEMBER 1995

REVIEWED FOR CLASSIFICATION  
By W. G. Gomer  
Date 11/6/95

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## 1. PURPOSE OF PROJECT

The purpose of the Integrated Water Management Strategy (IWMS) is to integrate all on-site water management in the context of the Accelerated Site Action Project (ASAP) and the Sitewide Baseline to guide overall implementation. Existing water and wastewater management planning documents will form the basis for the IWMS.

The objectives of the IWMS include the following:

- ◆ reduce operating costs for water management at Rocky Flats Environmental Technology Site (RFETS);
- ◆ ensure efficient operation of on-site water management;
- ◆ protect human health and the environment;
- ◆ identify and pursue strategic regulatory and operational issues that affect costs, human health and the environment; and,
- ◆ create a coordinated, comprehensive, and prioritized water management process.

- ◆ Stormwater runoff will not require active treatment beyond the current system of detention ponds, and treatment will not be required for movement of water between ponds.
- ◆ Ponds will be regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the short term. In the future, ponds may be regulated under the Clean Water Act (CWA) or a new Federal Facilities Compliance Agreement.
- ◆ Site-specific standards for radionuclides will be revised to either derived concentration goals under 10 CFR 834 or to similar risk-based standards.
- ◆ Final disposition of the ponds will either entail removing all surface water from the ponds or continuing operation for recreation/ecological benefit.

#### Groundwater

- ◆ Management of contaminated groundwater will be based on source removal and will be addressed in the Sitewide Groundwater Management Plan scheduled for completion in November 1995.

#### Raw Water

- ◆ Raw water demand will decrease as closure activities proceed and will end when ASAP has been completed. Water for domestic use and for fire water will be obtained by connecting to a municipal system with appropriate booster pumps and at-grade storage for fire water installed.

#### Wastewater Treatment

- ◆ The Sitewide Wastewater Treatment Strategy will be implemented and the need for Building 374 will be eliminated. Requirements for wastewater treatment will continue to decrease as closure proceeds and will be eliminated when ASAP has been completed. New sewer lines will be installed and a new small, zero-discharge sewage lagoon system will be constructed.
- ◆ Long-term treatment of contaminated groundwater will be used and maintained by reactive barrier walls or other passive technologies, as much as possible.

- ◆ Leachate collected from landfills will be managed by passive treatment systems or collected and treated off-site.

#### Surficial Soils

- ◆ The Interim Measure/Interim Remedial Action (IM/IRA) for the 903 Pad will be implemented within the next two years.
- ◆ Surficial soil contamination above cleanup levels will be excavated and placed under a cap, cover(s), or in basements of buildings.
- ◆ Uncapped areas within the Industrial Area and areas of Operable Unit 2 within the fence will be regraded and revegetated to minimize infiltration and erosion of contaminated areas.

### **3. APPLICABILITY OF THE PROJECT PLAN**

This project plan controls the research, development, drafting, and preparation of an Integrated Water Management Strategy document designed to accomplish the purpose and objectives outlined in Sections 1 and 2.

## 4. ORGANIZATION AND INTERFACES

### 4.1. Project Activities and Responsibility Matrix

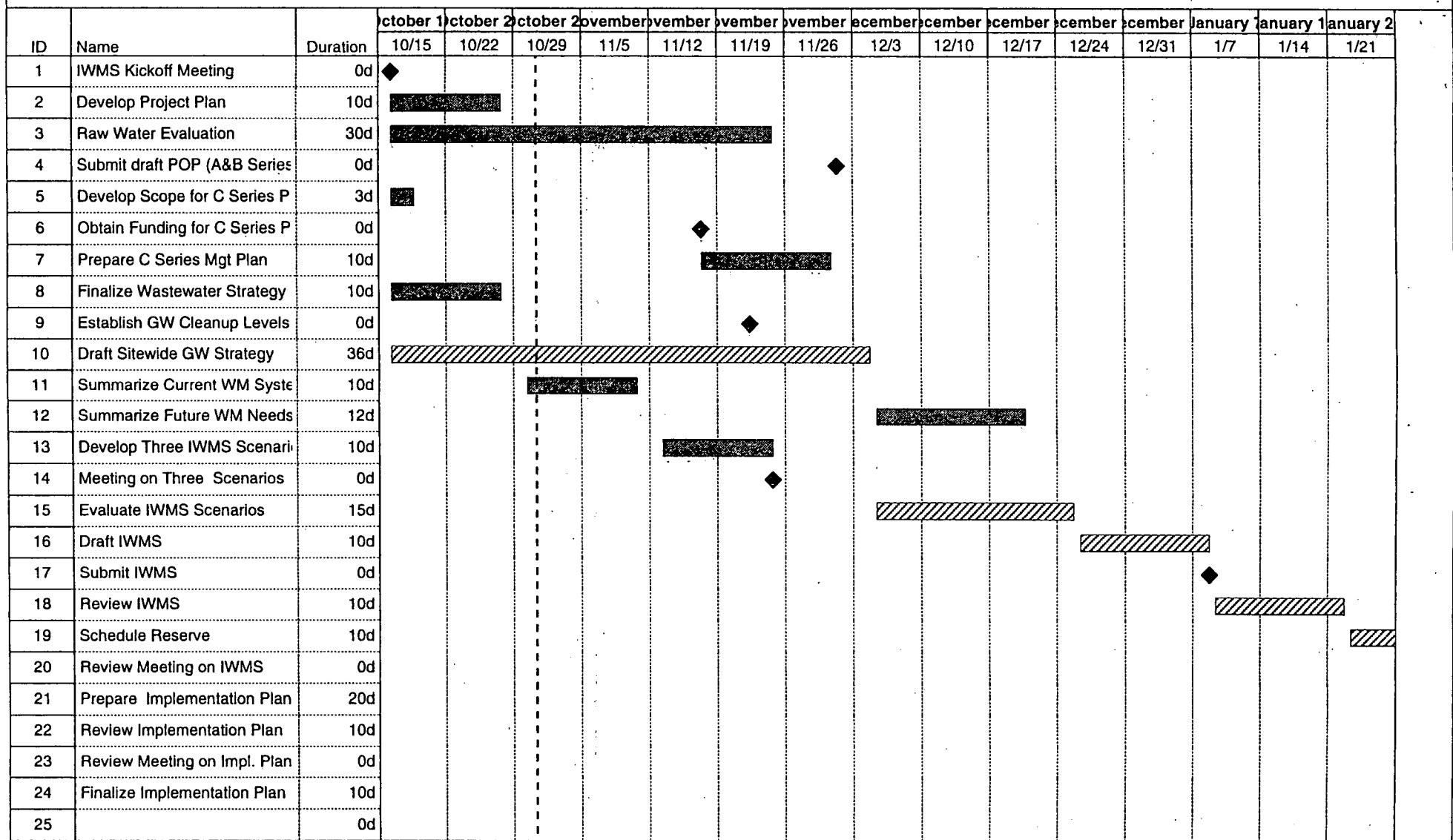
Activity	Responsible Group
Project Management	DOE (Doyle), K-H (Dayton), RMRS S&IP (Hopkins)
Review of historical reports and information (e.g., 1988 ASI and 1992 Zero Discharge studies) to establish available and missing information for RFETS water management.	RMRS S&IP (Hopkins)
Identify strategic regulatory and operational issues for surface water and groundwater	RMRS Permitting (Fiehweg), ER (Law, Motyl, Primrose)
Finalize Pond Operations Plan and develop input into the IWMS.	RMRS ER (Law, Motyl)
Finalize Sitewide Groundwater Management Strategy and develop input for the IWMS.	RMRS ER (Law, Primrose)
Complete Raw Water Evaluation and Site wide Water Balances.	RMRS S&IP (Hopkins), ER(Wetherbee)
Develop three scenarios for water management.	K-H (Dayton), RMRS S&IP, ER, Permitting
Prepare draft strategy document.	RMRS S&IP, ER, Permitting
Review draft strategy document and meeting to finalize recommendations.	DOE (Doyle), K-H (Dayton), RMRS S&IP, ER, Permitting,
Incorporate comments and finalize document.	K-H (Dayton), RMRS S&IP, ER, Permitting
Prepare and issue final strategy document.	RMRS S&IP



## 5. PROJECT PLAN SCHEDULE

The detailed project schedule is presented on the next two pages.

# INTEGRATED WATER MANAGEMENT STRATEGY



Project: Integrated Water Mgt Plan  
Date: 10/31/95

Critical ▨  
Noncritical ■

Progress —  
Milestone ◆

Summary —  
Rolled Up ◇

10

[illegible]

Project: Integrated Water Mgt Plan

Date: 10/31/95

## Critical

## Noncriti



100

## Progress

## Milestone

## Summary

Rolling Up

## 6. TASK DESCRIPTIONS

### 6.1. Identification of Associated Work Packages

The IWMS is funded under the ER Work Package 12176.

### 6.2. Task Description

As RFETS transitions from a production-ready status to an emphasis on ER, waste management (WM), and decontamination and decommissioning (D&D) of the site and proceeds to closure under ASAP, the water/wastewater balance will shift from earlier projections and decrease towards zero at closure.

In order to evaluate the effects of alternatives for long-term water management at RFETS, three scenarios will be developed and evaluated.

#### 1. Baseline Scenario - Status Quo.

- ◆ ASAP will not be implemented.
- ◆ Regulatory relief will not be obtained for site-specific standards for plutonium and americium.
- ◆ Ponds will be regulated as waters of the United States (U.S.).
- ◆ Engineered flow through improvements will be installed.

#### 2. ASAP strategy will be implemented and regulatory relief will be obtained.

- ◆ Ponds will be operated under the CWA.
- ◆ Radionuclide standards will be based on 10 CFR 835 or similar risk based standards with a minimum standard of  $10^{-4}$  cumulative risk for all toxins under probable exposure conditions.
- ◆ A flow through system will be in operation for the ponds within two years. The engineered flow through system would not be required, however, valves would have to be moved in the outlet pipe based on requirements of the State Engineer.
- ◆ Site ownership of catchment versus waters of the U.S.
- ◆ After closure, storm water management will be subject to the CWA, if applicable.
- ◆ Raw water use will be progressively eliminated to the time of closure and treated water will be supplied from outside municipal sources after closure.

- ◆ After closure, all process wastewater will be treated off-site. Sanitary wastewater will be treated in a new zero discharge lagoon system.
- ◆ Landfill leachate will be collected and treated by passive treatment or off-site.
- ◆ At closure, groundwater will be treated by passive treatment, where possible.
- ◆ Funding requirements for implementation will be prioritized.

3. ASAP strategy will be implemented and only limited regulatory relief will be obtained.

- ◆ Ponds will be operated under CERCLA.
- ◆ Radionuclide standards will be relaxed to between 0.05 and 0.5 pCi/L.
- ◆ A flow through system will be in operation for the ponds within two years. Engineered flow through improvements will be installed.
- ◆ Ponds will be operated as waters of the U.S.
- ◆ After closure, storm water management will be subject to the CWA, if applicable.
- ◆ Raw water use will be progressively eliminated to the time of closure and treated water will be supplied from outside municipal sources after closure.
- ◆ After closure, all process wastewater will be treated off-site. Sanitary wastewater will be treated in a new zero discharge lagoon system.
- ◆ Landfill leachate will be collected and treated by passive treatment or off-site.
- ◆ At closure, groundwater will be treated by passive treatment, where possible.
- ◆ Funding requirements for implementation will be prioritized.

Order-of-magnitude costs will be developed for implementing each of the above three scenarios.

### 6.3. Task Deliverables

The outline for the Integrated Water Management Strategy Document is presented below.

<p>I. Executive Summary</p> <ul style="list-style-type: none"> <li>◆ Strategy Summary</li> <li>◆ Purpose and Objectives</li> <li>◆ Alternatives Evaluated</li> <li>◆ Recommendations</li> <li>◆ Obstacles/Barriers to be Overcome</li> <li>◆ Future Planning and Integration</li> </ul> <p>II. Introduction</p> <ul style="list-style-type: none"> <li>◆ Scope</li> <li>◆ Approach</li> <li>◆ Document Organization</li> </ul> <p>III. Summary of Current Water Management Systems and Practice</p> <ul style="list-style-type: none"> <li>◆ Regulatory Considerations</li> <li>◆ General System Description</li> <li>◆ Present System Overview</li> <li>◆ Water Management System Components                             <ul style="list-style-type: none"> <li>• Raw Water Use</li> <li>• Raw Water Treatment</li> <li>• Water Use</li> <li>• Wastewater Treatment</li> <li>• ER Groundwater Treatment</li> <li>• Detention Pond Management</li> </ul> </li> <li>◆ Existing Sitewide Water Balance.</li> <li>◆ Water Recycle/Reuse</li> <li>◆ Water Discharge</li> </ul>	<p>IV. Summary of Future Water Management Needs</p> <ul style="list-style-type: none"> <li>◆ Regulatory Considerations</li> <li>◆ Basis For Projections - Accelerated Site Action Plan</li> <li>◆ Projection of Water Management Needs                             <ul style="list-style-type: none"> <li>• Sitewide Water Treatment Strategy</li> <li>• ER Groundwater Strategy</li> <li>• Raw Water Evaluation</li> <li>• Ponds Operations Plan</li> <li>• Projected Volumes</li> <li>• Projected Water Balances</li> </ul> </li> </ul> <p>V. Evaluation of Water Management Alternatives</p> <ul style="list-style-type: none"> <li>◆ Assumptions</li> <li>◆ Description of Alternatives</li> <li>◆ Evaluation of Alternatives</li> </ul> <p>VI. Recommendations</p>
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The IWMS document will contain the following:

- ◆ Summary tables and pictorial representations of water/wastewater balance for existing and future scenarios based on ER, WM, and D&D activities.
- ◆ Analyses of three scenarios and recommendations to plan long-term water management.
- ◆ Recommended actions/activities required to implement long-term water management based on site closure.

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